

ENVIRONMENTAL HEALTH PROJECT

DEFENDING PUBLIC HEALTH 2012-2022

environmentalhealthproject.org

September 19, 2022

Department of Environmental Protection
Southwest Regional Office, Air Quality Program
400 Waterfront Dr Pittsburgh PA 15222

RE: Air Quality Plan (PA-65-00767C) for Proposed Leachate Evaporation System at Westmoreland Sanitary Landfill

The Environmental Health Project (EHP) is a data-driven public health organization headquartered in McMurray, Pennsylvania, just south of Pittsburgh. EHP provides wide-ranging support to communities impacted by shale gas development (SGD). This support includes health impact assessments, environmental and health monitoring, data research and interpretation, and public health guidance. We are a skilled group of health professionals, scientists, community educators, analysts, and communication experts.

EHP has a decade of community science experience, working directly with frontline residents concerned about how their health has been, or may be, impacted by SGD. We seek to support communities more broadly in understanding the exposures and risks generated by SGD and to engage in policy dialogues at the local, state, and federal levels regarding the public health implications of shale gas activities. We have become national leaders in the comprehensive understanding of, and approach to, the public health consequences of SGD.

At EHP we are concerned with all aspects of shale gas development that can impact public health. This includes not just the process of drilling but also the transport, transfer, and treatment of waste from shale gas facilities. Over our tenure we have partnered with communities and organizations to understand the health impacts for those living near landfill facilities accepting this waste. It is with all this experience that EHP writes to offer our knowledge and expertise around working with impacted communities, specifically those near landfills, in order to provide the Department of Environmental Protection (DEP) feedback on the air quality plan for the proposed leachate evaporation system at Westmoreland Sanitary Landfill.

Health Impacts

Leachate is formed in landfills as rainwater filters through the waste and, in doing this, the liquid draws out a variety of chemicals or other substances present in the waste.¹ At Westmoreland Sanitary Landfill this is of particular concern because accepted oil and gas solid waste is known to contain radioactive materials which in turn can produce leachate that is also radioactive. Previous data has shown that leachate at landfills accepting this waste had frequent concentrations of radium-226 and radium-228 present that exceeded the maximum containment level.

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The presence of radium-226 and radium-228 are of great concern for individuals' health. The decay process of radium gives off unstable atoms in the form of alpha, beta, and gamma radiation. When ingested or inhaled, alpha, beta, and gamma particles have been linked to causing various types of cancers, such as lymphomas, leukemia, and bone cancer.ⁱⁱ Beyond the health impacts, another concern with radium is that it persists in the human body as well as in the environment due to a long half-life of 1,600 years.

If leachate is evaporated in the proposed system, this could lead to the creation of other byproducts such as radon, also a potential health concern. Radon leaks in landfills as the radium decays into radon gas. While radon has a much shorter half-life of 3.8 days, it can travel through air, settle on surface water, seep into groundwater, and collect in basements.ⁱⁱⁱ Exposure to radon, whether through inhalation or ingestion, is detrimental to human health. The EPA considers radon to be a human carcinogen, indicating that the more exposure someone has to radon the higher the chance they will develop cancer. Radon is the second leading cause of lung cancer in the United States, and it is estimated that radon is responsible for 20,000 lung cancer deaths every year.^{iv} Exposure to radon by children can be especially harmful because children have smaller lungs and faster breathing rates, which leads to higher radiation doses inhaled in the lungs in comparison to adults.^v The leachate evaporator would pose a large health risk to residents nearby due to substances like radon and radium being released from the leachate through the evaporation process.

A report conducted by the U.S. Department of Energy through the Environmental Science Division of Argonne National Laboratory in North Dakota looked at the risk of TENORM throughout the landfill disposal process. This report confirmed that if equipment such as fans or spray systems are used to enhance the evaporation rate, this may result in the formation of aerosols containing TENORM that could then travel downwind.^{vi}

In addition to concerns with radon and radium, there could also be cause for concern with PFAS, or per- and polyfluoroalkyl substances. In 2020 it was discovered that PFAS, or substances that break down into PFAS, were being used in oil and gas drilling.^{vii} Because of this use, PFAS could be present in the leachate. The PFAS present that are volatile would be evaporated into the air while those not volatile could be transported as aerosols and taken downwind. This evaporation and aerosolization could lead to the depositing of PFAS in soil, vegetation, or water, especially downwind from the facility. PFAS have been linked to kidney and testicular cancers, increased cholesterol levels, changes in liver enzymes, increased risk of high blood pressure or pre-eclampsia in pregnant individuals, small decreases in infant birth weights, and reduced effectiveness of vaccines in children.^{viii}

Due to the known health impacts associated with radium, radon, and PFAS, as well as the fact that an environmental impact study was never conducted, EHP shares great concern for the health impact this evaporator would have on surrounding communities.

Recommendations

If the proposal of the leachate evaporator moves forward, EHP would like to make several recommendations in the effort to ensure protection of citizens' health.

The draft air quality monitoring plan includes continuous and passive monitors to measure radiological emissions from the leachate evaporator. However, under this plan, the results from these monitors will

only be made available to the DEP on a quarterly basis. EHP is in favor of this continuous and ongoing monitoring, but to best protect the health of residents in the surrounding area, the resulting data needs to be publicly available. The data collected by these monitors should be made publicly available as soon as the results are collected. Additionally, the results from quarterly testing of stack emissions and leachate should be made available to the public as soon as possible.

The proposed permit requires the immediate shutdown of the leachate evaporator if any monitoring results exceed the NRC's air discharge limits. For nearby residents to take action to protect their health in this situation, we ask that the DEP require the operator to alert all nearby residents to the facility of any exceedance.

Lastly, since there could be cause for concern about PFAS presence in the leachate, EHP recommends, at the minimum, that additional testing be completed to include testing the leachate for PFAS. These tested levels could then be used along with the volume of leachate evaporated in a year to determine the potential spread of PFAS. To complement this additional testing, EHP recommends random sampling of soil and vegetation, both upwind and downwind from the facility, to determine if PFAS contamination is of concern.

This leachate evaporator presents critical risks to public health. The DEP needs to assure the safety of residents exposed to harmful emissions through both normal activities and accidents. These safety considerations need to be comprehensive, transparent, and public.

Thank you for the opportunity to provide comments regarding the air permit for the proposed leachate evaporator system at Westmoreland Sanitary Landfill. Feel free to reach out to me or EHP generally for more information or clarification.

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ⁱ Earthworks. (2019, May). *Still Wasting Away: The failure to safely manage oil and gas waste continues.* https://earthworks.org/wp-content/uploads/2021/09/National-Phase-1_WastingAway_2.0-5-2019.pdf

ⁱⁱ Environmental Health Project. (2019, May). *Risks from Liquid, Sludge, and Solid Waste from Shale Gas Development.* https://www.environmentalhealthproject.org/_files/ugd/a9ce25_f26575aeba3b43a98fbec71beaae79a6.pdf?index=true

ⁱⁱⁱ Environmental Health Project. (2019, May). *Risks from Liquid, Sludge, and Solid Waste from Shale Gas Development.* https://www.environmentalhealthproject.org/_files/ugd/a9ce25_f26575aeba3b43a98fbec71beaae79a6.pdf?index=true

^{iv} Radon in the Home. (2022, January 3). Centers for Disease Control and Prevention.
<https://www.cdc.gov/nceh/features/protect-home-radon/index.html>

^v Agency for Toxic Substances and Disease Registry. (2012, October). *Radon -ToxFAQs*.
<https://www.atsdr.cdc.gov/toxfaqs/tfacts145.pdf>

^{vi} Argonne National Laboratory. (2014, November). *Radiological Dose and Risk Assessment of Landfill Disposal of Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) in North Dakota*. US Department of Energy. <https://publications.anl.gov/anlpubs/2014/11/110063.pdf>

^{vii} Horwitt, D. (2021). Fracking with “Forever Chemicals”. *Physicians for Social Responsibility*.
<https://www.psr.org/wp-content/uploads/2021/07/fracking-with-forever-chemicals.pdf>

^{viii} Agency for Toxic Substances and Disease Registry. (2020). PFAS. Centers for Disease Control and Prevention.
<https://www.atsdr.cdc.gov/2019atsdrannualreport/stories/pfas.html#:~:text=In%20the%20late%201960s%2C%20PFAS,population%2C%20suggesting%20widespread%20chemical%20exposure>